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EXAMINER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

ADVISORY ACTION
WITHDRAWN REJECTIONS

1. The 35 U.S.C. 112, first paragraph rejection of Claims 12, 16 - 17 and 36, of record on page 2 of the previous Action, is withdrawn.
2. The 35 U.S.C. 112, first paragraph rejection of Claim 27, of record on page 2 of the previous Action, is withdrawn.
3. The 35 U.S.C. 112, first paragraph rejection of Claims 12 - 17 and 19 - 35, of record on page 2 of the previous Action, is withdrawn.

ANSWERS TO APPLICANT'S AMENDMENTS

Claim Rejections – 35 USC § 103(a)

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 12 – 17, 19 – 26 and 28 – 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brinker et al (U.S. Patent No. 6,264,741 B1) in view of Dams (European Patent No. 1225188).

With regard to Claims 12 - 13, 16 – 17, 19, 25, 28 – 30 and 34 - 38, Brinker et al discloses an inorganic / organic (column 3, lines 9 - 10) nanolaminate (column 3, line 30) film

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(column 3, line 66) which has a plurality of layers of an inorganic material (silicate layers, therefore discrete layers comprising multiple layers or lamellae and consisting of silicate and having a different composition from a polymer layer; column 4, line 30) and a plurality of layers each consisting of an organic polymer (column 4, lines 63 - 64), therefore hydrophobic, wherein, the layers of organic polymer alternate with the layers of inorganic material (column 3, lines 15 - 20) wherein the adjacent layers of the film are covalently bonded layers characterized by direct organic polymer - inorganic material covalent bonds (column 5, lines 33 - 35); the inorganic material therefore presents a long and tortuous path to an underlying substrate (tortuous path; column 5, lines 13 - 15); the organic material is hydrophobic (column 3, lines 15 - 20) and the film is a coating (column 3, line 51) the film is therefore a barrier film; the film comprises a hydrophobic compound (column 4, lines 20 - 25), and therefore has a tuned hydrophobicity that decreases the permeability of the film relative to a film that is hydrophilic; the film has between 100 and 1000 layers (column 3, line 44 - 46); Brinker et al also disclose self- assembly of nanostructures (column 3, lines 3 - 8); Brinker et al also disclose micelle formation and incorporation of polymer precursors into the micellar interiors (column 5, lines 15 - 24). Brinker et al fail to disclose layers that contain superhydrophobic material and comprise fluoroalkylsilane.

Dams teaches a monomer comprising fluoroalkylsilane (paragraph 0008), therefore superhydrophobic, for a coating (paragraph 0052) for the purpose of obtaining a coating that is oil repellent (paragraph 0011). One of ordinary skill in the art would therefore recognize the advantage of providing for the monomer of Dams et al in Brinker et al, which comprises a coating, depending on the desired use of the end product. It therefore would have been obvious

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for one of ordinary skill in the art to have provided for a one or more superhydrophobic layers comprising fluoroalkylsilane in Brinker et al in order to obtain a layer that is oil repellent as taught by Dams.

With regard to Claim 14, Brinker et al disclose a nanolaminate, as stated above, and therefore disclose layers of organic material having a thickness of 1 nm.

With regard to Claim 15, the film disclosed by Brinker et al is transparent (column 3, line 50).

With regard to Claims 20 - 21, the layers disclosed by Brinker et al are hydrophobic, as stated above, and therefore comprise layers made from polymer precursors to which a hydrophobic group comprising methyl has been added.

With regard to Claims 22, 26 and 31 - 33, Brinker et al disclose a Gemini surfactant (column 4, lines 45 - 46) and tubules (column 8, line 6) and layers which are self assembled (column 5, lines 7 - 31).

With regard to Claims 23 - 24, the film disclosed by Brinker et al is utilized a coating, as stated above; Brinker et al therefore disclose an article of manufacture having the film disposed on the surface.

ANSWERS TO APPLICANT'S ARGUMENTS

6. Applicant's arguments regarding the rejections of the previous Action have been carefully considered but have not been found to be persuasive for the reasons set forth below.

Applicant argues, on page 8 of the remarks dated September 15, 2008, that a published technical paper submitted by Applicant discusses the hydrophobic driving force encountered in self - assembly, and is countered in the paper by placing hydrophilic headgroups on the micelle surface; a self - assembled structure formed using a superhydrophobic material, Applicant argues, is therefore non - obvious.

However, it is unclear that a self - assembled structure formed using a superhydrophobic material is non - obvious if a sufficient counterforce is provided; furthermore, no working example has been provided in the specification of a self assembled structure comprising a superhydrophobic material, thus no data has been presented showing unexpected results.

Applicant also argues, on page 9, that experiments have been performed per the teachings of the present application.

However, the experiments were not submitted in the original specification, and have not been submitted as a declaration; the term 'superhydrophobic,' denoting a self assembly formed using a superhydrophobic monomer, also does not appear to be part of the disclosed experiment.

Applicant also argues on page 9 that there is no suggestion in Dams to modify the organic layer to provide moisture barrier properties or alternating layers containing a superhydrophobic material.

However, Brinker et al do not exclude a monomer comprising a fluoroalkylsilane as in Dams, and, as stated on page 2 of the previous Action, it would have been obvious for one of ordinary skill in the art to have provided for a fluoroalkylsilane in Brinker et al to provide for an oil - repellent coating.

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Applicant also argues on page 9 that the claimed invention is contrary to accepted wisdom.

However, as stated above, it would have been obvious for one of ordinary skill in the art to have provided for a fluoroalkylsilane in Brinker et al to provide for an oil - repellent coating.

7. The declaration of 37 CFR 1.132, submitted February 22, 2008, has been carefully considered but has not been found to be persuasive.

In the declaration, Dr. Michael McGehee states that a self assembled structure comprising a superhydrophobic material is surprising. However, Dr. McGehee's expertise in the making of self assembled structures has not been clearly established, and no working example has been provided in the specification of a self assembled structure comprising a superhydrophobic material, thus no data has been presented showing unexpected results.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497.

The examiner can normally be reached on Mon - Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Marc A Patterson/
Primary Examiner, Art Unit 1794